#### APPENDIX VI

## Responses to Public Comments on the February 2005 Draft Report for Board Review

Eleven individuals and organizations commented on the February 2005 report that was considered by the Board. Comments are arranged in alphabetical order of the commenting organization and have been paraphrased by ARB staff.

#### **ASSOCIATION OF HOME APPLIANCE MANUFACTURERS**

**Comment**: The report makes substantial errors in equating air cleaners that purposely emit ozone with the vast majority of air cleaners. The report should differentiate between air cleaners that generate trace amounts of ozone and those primarily designed to generate ozone. The majority of air cleaning devices that comply with existing U.S. national safety standards for ozone emissions should not be listed in the "high priority" category.

**Response:** The February draft report clearly distinguishes between these types of air cleaners in Section 5.5 and Section 6.1, and does not imply that the vast majority of air cleaners emit ozone. Ozone-generating air cleaners are included as a high-priority source in Table 6.1; and the supporting text in Section 6.1 emphasizes that devices that purposely emit ozone are the primary concern. The report also states that air cleaners based on different technologies may or may not emit ozone as a by-product, thus causing some concern.

**Comment**: It should be pointed out that Underwriters' Laboratory (UL) has a safety standard related to ozone output for air cleaning devices; air cleaning devices that meet this standard should be exempt from regulation. The standard is 50 ppb ozone; one reference in the report to a 100 ppb UL standard on p. 139 should be corrected.

Response: The voluntary UL standard is discussed in Section 4.3.2.3; the ozone limit has been corrected. Section 4.3.2.3 of the report was revised to include substantial information provided by AHAM on AHAM's and ANSI's role in testing and certifying air cleaners reflect the 50 ppb standard, and to reflect the planned revisions to the UL according to AHAM. However, not all air cleaners are certified to meet this standard. In addition, Niu *et al.*, 2001a,b found that some ionizers and electrostatic precipitators that meet the UL standard can still emit unhealthful levels of ozone; Section 5.5 was revised to reflect this information. It is our view that a health-based protocol and standard that is protective of sensitive individuals would need to be more protective than a safety standard such as the UL standard, and that the UL test protocol needs some refinement to assure safe levels of ozone.

**Comment**: The report makes a value judgment regarding the effectiveness of air cleaners.

**Response:** The statement regarding the effectiveness of air cleaners is supported with three citations, one of which is the Consumers Union, which publishes Consumer Reports.

**Comment**: It is incorrect to state that no state or federal agency has direct regulatory authority to control emissions from these devices. Los Angeles County requires that such products meet the UL Standard 867, Section 37 that limits emissions to 50 ppb ozone.

**Response:** Our statement is correct. Los Angeles County is a local agency rather than a state agency, and does not directly regulate emissions. However, we are encouraged to see that Los Angeles is providing some guidance in this area and taking whatever actions they are able to take to address ozone emissions from air cleaners.

**Comment**: The Report does not recognize that gas cooking products are used on an intermittent basis. Nor does it recognize the recent review by the U.S. Consumer Products Safety Commission on the adequacy of the present CO emission limit under the ANSI Z21.1 standards.

**Response:** The intermittent use of gas stoves was added to the Executive Summary. However, as indicated in the report, the majority of the population has gas appliances in their homes, and they are designed to be used for hours at a time, for example for baking, roasting, and simmering. Indoor pollutant concentrations during cooking activities can exceed ambient air standards, as indicated in the report. We have added information regarding the ANSI/Z21 standard, but it is not clear this would assure healthful levels of indoor NO<sub>2</sub>, and aldehydes, and CO, over the lifetime of the appliance. We reference modeling studies that indicate that the ARB's IAQ guideline and state ambient air quality standards would be exceeded under some conditions.

**Comment**: The Report does not adequately explain the issue of CO deaths. It appears to overstate the number of deaths relative to the January 2005 National Fire Protection Association report that indicates the national average of non-fire related CO deaths involving home cooking equipment totals 22. The CPSC indicates that in 1996, 217 people died due to CO poisoning in the entire country.

**Response:** Several recent sources of national and California data are cited in Section 2.2.4.1. The California study is considered most accurate because it reviewed ten years of death certificates. The cited body of literature would indicate the numbers from the Fire Association are low; this is likely due to the fact that those figures do not include all CO-related deaths, only those that are suspected as CO deaths at the time of the event..

**Comment**: The report lumps together all combustion appliances including gas stoves/ ovens, furnaces, heaters, wood stoves, and fireplaces in Table 6.1. We do not believe that any of the listed/certified gas appliances cause significant IAQ issues, especially cooking appliances.

**Response:** The February draft report discusses CO mortality, by type of indoor combustion appliance, in Section 2.2.4.1, and emphasizes the increased risks of CO and  $NO_2$  from unvented and poorly vented combustion appliances (Sections 2.2.4–2.2.5, ). As stated previously, based on modeling results, it is not clear that certified appliances would assure healthful levels of indoor  $NO_2$  and aldehydes as well as CO, especially over the lifetime of the appliance with typical maintenance levels. Although combustion appliances are grouped together at this time, every device may not warrant changes. A full analysis would be conducted if measures are to be pursued to address indoor combustion appliances, and unvented appliances would be the primary focus, as stated.

**Comment**: The Report fails to mention that zero-emitting gas appliances are not technologically feasible. However, appliances do conform to standards set by the ANSI/Z21/83 committee. The

report fails to mention the recent Gas Research Institute study which found that the standards have a high margin of safety and they do not need to be changed. CPSC also concluded that no changes are necessary to the voluntary safety standards. These ANSI standards are developed by a consensus of pubic and private groups, and testing is done by third-party agencies.

**Response:** Direct-vented (sealed-combustion) appliances are virtually zero-emitting in terms of indoor emissions. For example, direct-vent gas furnaces and gas fireplaces are very energy efficient, are resistant to backdrafting, and have been used widely for years. Direct vent gas stoves were developed by the Canadian Gas Research Institute in the 1990s but have not been marketed widely. Such options are included in the report for completeness; any emission reduction or exposure reduction measures pursued in the future would fully consider the technical and economic feasibility at that time.

Regarding the adequacy of the ANSI standards, and CPSC's findings, etc., we have included additional information in the report as requested by AHAM. However, ANSI and CPSC both are safety oriented, and do not use health measures as protective as those used in California for identifying acceptable vs. potentially unhealthful pollutant levels.

**Comment**: The report should reference the CPSC guide for emergency response personnel, "Responding to Residential Carbon Monoxide Incidents".

**Response:** The CPSC guide for emergency personnel (July 2002) has useful safety information, but it does not recommend any further investigation if CO levels are below 30 ppm. This level is based on their benchmark of false alarm resistance and the protection of healthy adults. However, this benchmark level is less protective than California's ambient air quality standard for CO, which is designed to protect sensitive subgroups such as heart disease patients and children. In addition, an indoor reading of 30 ppm usually indicates the presence of an indoor source of CO, one that often needs to be addressed. Further, the guide does not include testing for backdrafting, a common cause of elevated CO when exhaust fans or HVAC systems are operating.

**Comment**: In Section 4, the report discusses emission levels from unvented appliances, without discussing any evidence for health effects at expected CO or  $NO_x$  emissions from properly installed and maintained gas appliances. Table 4.1 recommends 20 ppm as a maximum 1-hour exposure to CO. There is no basis for this level that is lower than the U.S. EPA 35 ppm level.

**Response:** The report summarizes clinical, epidemiological, and exposure studies in Section 2.2.4 and 2.2.5, supporting the concern for health risks due to indoor CO and NO<sub>2</sub> exposures that have been observed in homes. The increased exposures and health risks linked to combustion appliances are discussed. Data indicate that indoor levels can exceed ambient air quality standards for CO and NO<sub>2</sub>, sometimes due to poor appliance venting by design, and sometimes due to improper installation or maintenance. California has an ambient air quality standard of 20 ppm CO, based on an 1-hour exposure duration. This standard was widely reviewed and approved by notable scientists, and is the basis of the indoor guideline level.

**Comment**: AHAM objects to most of the proposals in Section 7, "Options to Mitigate Indoor Air Pollution". Establishing emission limits specifically for California is not justified. ARB should work within existing safety standard processes rather than establishing emission limits and testing requirements specific for California.

**Response:** ANSI and ASTM standards are safety standards, are not based on California housing and environmental factors, and may not adequately protect our citizens' health. Additionally, they are not required to be met by all manufacturers. We believe that emission limits are needed for some sources, but as indicated in the report, a more detailed assessment would be conducted prior to the development of emission limits for any specific type of product. ARB actively participated in the attempted development of UL/ANSI standards for indoor products in the past, but unfortunately the process did not result in standards. We will participate in the future as resources allow.

**Comment**: The Executive Summary states that vacuuming the house contributes to indoor air pollution. This is not based on fact.

**Response:** Several references were added to Section 2.2.2, Indoor PM Sources and Emissions, that indicate vacuuming can be a source of elevated indoor particulate matter levels.

**Comment**: The report incorrectly states that there are no consensus standards for testing and performance of vacuum cleaners.

**Response:** Section 4.3.2.2 of the report was revised to reflect the ASTM performance standards, and that an industry standard to address PM emissions from vacuum cleaners is under development.

**Comment**: There is no evidence in the report to support the statement that household appliances and office equipment such as computers, copy machines, and vacuum cleaners can emit a variety of pollutants such as particles, ozone, various VOC's of concern, phthalates, and PBDE's.

**Response:** These sources are discussed under several pollutants in Chapter 2. Emissions from office machines also are discussed in Section 2.3.12, "Non-Industrial Workplaces" in the subsection titled "Photocopy Centers". Citations for vacuum cleaner studies were added, as indicated above.

**Comment**: ARB has not made a strong case for the regulation of vacuum cleaners. They should be removed from the Section 6 prioritization.

**Response:** Vacuum cleaners were removed from the prioritization tables. Much progress has been made in improving vacuum cleaner performance and emission limits. However, as indicated in the new citations that show emissions of high levels of PM during vacuuming, some models of vacuums may be a cause for concern and should be addressed. ARB encourages the industry to complete the development of a standard to address particle emissions during vacuuming, and to develop a robust certification program to eliminate this concern. We are willing to participate as resources allow.

**Comment**: ARB should continue to support educational and outreach programs. Cleaning guidelines for appliances are included with appliances. Consumers must bear some responsibility for maintaining their appliances in a proper manner. AHAM believes that consumer education would be more effective than added regulation.

**Response:** Both public education and source reduction are needed for reducing indoor emissions to acceptable levels. The report text was previously revised to include more discussion of public and professional education and outreach strategies. However, we

believe it is also industry's responsibility, and it is more effective for industry to fully educate their customers regarding recommended cleaning and use of appliances.

**Comment:** AHAM continues to disagree with the Report that many actions can be taken to reduce indoor air pollution at relatively low cost, including the development of emissions limitations for...appliances.

**Response:** We believe there are a number of actions that can be immediately taken to reduce indoor air pollution at low cost. Although there would be costs for emission limitations, costs for design changes for appliance vary by industry, by facility, by appliance, and by other factors, such as whether the changes can be implemented as part of other planned facility modernization or appliance changes.

#### THE CENTER FOR SCHOOL MOLD HELP

**Comment:** The critical importance of addressing mold issues within schools is paramount for this organization. Aggressively addressing the issues of mold in schools will ultimately be more cost effective than not dealing with these issues. School mold is a national health problem.

The recommendations presented in the report are not strong enough; strong regulations are needed. Guidelines become just another state document with inadequate clout. Recommendations presented in the report should include enforced mandates and tough sanctions, the requirement of "Best Practices", and mandatory training relative to indoor air quality issues.

Speakers offered many suggestions for mandating the mitigation of mold in classrooms. Examples include minimum exposure standards for mold, biological toxins and their interplay with chemical toxins. School districts could use unannounced facility inspections, issue an environmental report card, and regional agencies could issue a stiff penalty for inadequate conditions. School funding should be contingent upon following good air quality standards. Speakers recommended that the state conduct research on the systemic health effects of long-term exposures to biological toxins in order to set minimum exposure standards for children and adults. The state should create a "Child Environmental Protection Agency". The state should fund SB732 to set mold standards for school buildings and institute mandatory regulations related to mold and water intrusion promptly.

Witnesses provided testimony of personal experience in severely water damaged classrooms with resulting illness and the loss of their quality years of life. School districts meet their complaints with the three Ds – defensiveness, denial, and discrediting.

Response: Thank you for your support of our report. We agree with most of the suggestions you offer; however, there is a lack of regulatory authority to enforce existing guidelines and "Best Practices". As indicated in Section 4.2.3 of the report, the Department of Health Services (DHS) is the lead state agency for addressing mold issues. They have a draft report undergoing internal review regarding the feasibility of identifying permissible exposure limits for indoor mold, pursuant to SB 732. DHS is also conducting research on how indoor microbial growth affects human health. The Centers for Disease Control (CDC) just started a large project to investigate how microbial growth affects human health. We agree that more actions should be taken, and are working cooperatively with nonregulatory programs such as the EPA Tools for Schools

program, and school environmental health departments to implement recommendations from the California Portable Classroom Study.

#### **CONSUMER SPECIALTY PRODUCTS ASSOCIATION**

**Comment**: CSPA is concerned that the report presents undue emphasis on indoor emissions that present little or no health risks while failing to highlight more significant risks. The review of biological contaminants is cursory and greatly under-represents the serious health risks associated with this pollutant category.

**Response:** It is not clear which indoor emissions CSPA believes are insignificant. We believe that all indoor emissions of carcinogenic compounds and irritant compounds are potentially significant, and must be considered in light of other factors such as the presence of multiple indoor sources, extent of infiltration from outdoors, duration of exposure, and so on. For all pollutants, the report describes sources and health risks associated with the pollutant. We previously expanded Section 2.3.4 on biological contaminants, and it is one of the longest pollutant sections.

**Comment**: Dozens of studies provide clear evidence that biological contaminants contribute to serious public health problems. CSPA specifically mentions a study that indicates cockroach allergens play a predominant role in the exacerbation of asthma symptoms. The report is flawed by not mentioning the many benefits of formulated consumer products.

**Response:** The report cites many recent studies that identify links between biological contaminants and adverse health effects. We acknowledge that many more are available in the literature that were not included in our report. Relative to cockroaches being an allergen, three recent citations were provided. The report acknowledges that many consumer products have beneficial effects. Also, section 5.3 "Building operation and maintenance" discusses the need for regular building maintenance, as well as the beneficial aspects of regular and effective cleaning.

**Comment:** The Report still fails to appreciate fully the rigorous federal product safety regulations that govern formulated consumer products as well as the efforts of manufacturers of those products to assure product safety that go beyond mere regulatory compliance.

**Response:** A brief synopsis of the jurisdiction of the Consumer Product Safety Commission (CPSC) over consumer products is presented in the Executive Summary, with more detail provided in Section 4.3.1.1. However, CPSC's actions are focused more on immediate safety (actions to prevent immediate death or life-threatening illness) than health, and CPSC only infrequently prohibits a specific component in a product. The section also includes information on the benefits of voluntary (industry) standards.

#### DANIELS, LEE

**Comment**: Please provide just one reproducible scientific study that has proven second hand smoke causes cancer. It is a fact that second hand smoke has never been shown to be a causative factor in lung cancer.

**Response:** Section 2.3.3 provides several citations that link environmental tobacco smoke (ETS) with various health effects, and many others are provided in a report that specifically examines the research on ETS. That draft report, prepared by ARB and

OEHHA staff, for the identification of ETS as a toxic air contaminant, contains a much more complete discussion of this topic. It is cited in the indoor air pollution report and is available on the ARB website at <a href="http://www.arb.ca.gov/toxics/ets/dreport/dreport.htm">http://www.arb.ca.gov/toxics/ets/dreport/dreport.htm</a>.

# ENVIRONMENTAL HEALTH SCIENCES AND EDUCATION; COMMUNITY ACTION TO FIGHT ASTHMA

**Comment**: Many references pertaining to studies conducted in California schools were not included in the report. These studies have been provided to ARB.

Response: The report includes several of these references; some were cited under the primary author's name, or a more recent version was cited. The report did not include the ARB study of children's school bus exposures and the CDE study of school sound levels because these issues were not the primary focus of the AB 1173 report. The report did not include the Daisey et al. review, the Shendell et al. (2003 a,b) pilot study of VOCs in portable classrooms, and the Hodgson et al. 2003 study of VOCs in four portable classrooms because they were included in the California Portable Classroom Study (PCS) report, which is summarized in the report. The results of the PCS,, based on a large, statewide, representative sample for California, provided the most substantive basis for the report's conclusions.

The AB 1173 draft report has been revised to include information from some additional studies: the Apte *et al.* 2003, Shendell *et al.* 2003c, and Shendell 2004 references were included in Section 5.2; the DHS study of lead blood levels and lead dust concentrations in older homes was included in Section 2.3.6.3.

**Comment:** Recommendations for mitigating indoor pollution in schools should be updated and include an attached reference (Shendell *et al.*, 2004). It is a paper that reviews about 300 scientific citations and offers 18 recommended best practices to reduce or prevent potential occupant exposures to biological, chemical, and physical agents of concern in American school facilities.

**Response:** This article was already included in the February 2005 draft report. The recommended best practices in the article are consistent with those of the ARB/DHS report on the California Portable Classroom Study (summarized in Section 7.2 of the draft report), and with other references cited in the February 2005 draft report, such as documents from CHPS and U.S. EPA.

#### FLORIDA CHEMICAL COMPANY, INC.

**Comment**: There is insufficient data to support the concerns raised about d-limonene and/or terpenes in general. ARB has stepped outside the bounds of today's accepted science in regard to potential reactions of terpenes. We presented multiple studies to ARB and have not seen any response to those studies. The presence of terpenes cannot be equated to public risk. The report fails to consider the indoor air quality benefits associated with cleaning products formulated with citrus terpenes.

**Response:** At your request, we have added information from two of the three studies you provided with A.T. Karlberg as lead author. As you know, these papers deal with auto oxidation of d-limonene to create compounds with sensitizing and allergenic potential. When terpenes react with ozone in air, they produce irritating compounds such

as formaldehyde and ultrafine particles, which may pose a public risk. The Report includes multiple citations from highly respected scientists documenting these reactions, indicating ARB is not "outside the bounds of today's acceptable science". However, more research is needed to fully understand these reactions, resultant levels of products, exposures, and associated health impacts, and this is included in our recommendation regarding further research.

#### **GROCERY MANUFACTURERS OF AMERICA**

**Comment**: The Report fails to adequately consider public health and indoor air quality benefits that accrue with the use of many consumer products. Many consumer products play an important role in reducing indoor exposures to biological contaminants. Considering products only as air pollutants without giving equal attention to benefits does not adequately inform the debate.

**Response:** This comment has been made by industry during each comment period. As a result, we have attempted to provide greater balance to the report. General discussion deals with the trade-offs of modern society. Consumer products impart obvious benefits to society; however, these desirable products at times have a down side – the emission of a variety of chemicals. Section 5.3 "Building Operation and Maintenance" also recognizes that regular cleaning of indoor spaces with proper cleaning methods can reduce biological contaminants.

### LEWIS, J.

**Comment:** How may I obtain a copy of test procedures and results? The association between breast cancer and environmental tobacco smoke is hard to believe and I don't believe the results.

**Response:** The information on exposure to environmental tobacco smoke and breast cancer indicates that exposure to environmental tobacco smoke can increase the risk of breast cancer. However, this information is currently under review by the Scientific Review Panel, an external scientific peer review panel who will make the final determination. For complete details of this topic and references, please refer to the document *Proposed Identification of Environmental Tobacco Smoke as a Toxic Air Contaminant*, available at <a href="http://www.arb.ca.gov/toxics/ets/dreport/dreport.htm">http://www.arb.ca.gov/toxics/ets/dreport/dreport.htm</a>.

#### MAYTAG

**Comment**: Combustion appliances should not be listed as a high priority category. Excessive exposures are due to consumer misuse and the appliances are only used on an intermittent basis. The Consumer Product Safety Commission, California Energy Commission, and the U.S. Department of Energy have studied appliance emissions and concluded that carbon monoxide and nitrogen oxide emissions from gas ranges are insignificant due to the nature of product use.

**Response:** The category of "combustion appliances" remains in the high priority group because one or more combustion appliances are present in virtually every home, and because gas stoves and some other devices are unvented, leading at times to high emission and exposure. Studies cited in the report indicate that under normal stove and range operation, indoor nitrogen dioxide levels can exceed the 1-hr ambient air quality

standard. However, this does not mean that every device would warrant changes. A full analysis would be conducted if measures are to be pursued to address indoor combustion appliances. For its existing regulatory programs, ARB conducts economic analyses prior to taking action.

Regarding other agencies' assessments of the risk posed by unvented gas appliances, as explained above, we use a more protective health basis for assessment than do those groups.

**Comment**: The fact that adults stay inside the home 62% of the time on average, is questionable and appears to be high.

**Response:** We are unaware of studies showing any substantially different results from the early activity pattern studies, in terms of time spent indoors and outdoors. Subsequent to ARB's studies, large national surveys and local field studies have replicated the general findings on time spent indoors.

**Comment**: The incidence of California CO poisoning-caused deaths due to indoor sources seems high. The January 2005 National Fire Protection Association report indicates that the 1997 – 2001 national average of non-fire related CO deaths involving home cooking equipment totals 22.

**Response:** Several recent sources for national and California data are cited in Section 2.2.4.1. The California study is considered most accurate because it reviewed ten years of death certificates where the cause of death due to CO poisoning was absolutely certain. See additional information in response to AHAM, above.

**Comment:** Appliances are not differentiated in the report as to water heaters, furnaces, charcoal grills, and gas ranges and ovens. These should be differentiated to accurately portray the danger of CO poisoning from each type of appliance. Maytag believes a very small number of deaths were attributable to gas ranges.

**Response:** The contribution of these categories of appliances to CO deaths in California is provided in Section 2.2.4.1. An updated collection and analysis of data, as you suggest, would be a first step should we be directed to control emissions from combustion appliances.

**Comment**: Vacuum cleaners should be removed from the list of medium priority source categories. There is no substantial information in the report that vacuum cleaners release harmful emissions. The report should state that there are industry consensus standards for testing the performance of vacuum cleaners.

**Response:** Vacuum cleaners were removed from the prioritization tables; however, as indicated in the new citations that show emissions of high levels of PM during vacuuming, they can produce PM levels of health concern, and those vacuums should be addressed. ARB encourages the industry to complete the development of a standard to address emissions during vacuuming, and to develop a robust certification program to eliminate this concern.

**Comment**: We object to proposed emissions limits. ARB should work with existing standards organizations such as ANSI and ASTM to ensure that products are safe and effective.

**Response:** We commend those working on ASTM and ANSI standards that include consideration of indoor air quality. However, ANSI and ASTM standards are not based on California housing and environmental factors, and may not adequately protect our citizens' health. Additionally, they are not required to be met by all manufacturers. ARB actively participated in the development of UL/ANSI standards for indoor products in the past, but unfortunately the work did not result in standards; we will participate in the future as resources allow.

#### THE SOAP AND DETERGENT ASSOCIATION

**Comment:** We recommend clarification for the term "consumer product". Many types of products are included under this broad term, from thousands of household and institutional cleaners to imprecisely defined personal care products. It would be beneficial to carry a detailed description of "consumer product" throughout the report. The report should explicitly list which consumer products are associated with the listed chemical substances.

Response: As you indicate, many types of products are mentioned in the report as consumer products. Consumer product has been defined and categorized somewhat by the ARB Consumer Products Program. The report adequately describes the types of products that are discussed. If further action is taken on this source category, more effort would be placed on definitions, before proceeding with mitigation efforts. In regards to specifically listing chemicals associated with specific products, this would be an overwhelming task outside the scope of this report. As you indicate, there are thousands of products. Many ingredients are protected by confidentiality laws.

**Comment:** SDA recommends that all tables and text lists be placed in alphabetical order.

**Response:** Tables that list pollutants or source categories are in alphabetical order. In Chapter 2, criteria pollutants are discussed first, followed by other indoor air pollutants, with more significant ones discussed first.

**Comment**: We recommend working with established programs to implement emission limits rather than create new systems. Due to pre-existing regulations on consumer products, a requirement to submit consumer products for emission testing would be an unwarranted step for manufacturers to take. We recommend that this option be omitted for consumer products.

**Response:** Working with established programs makes sense. However, the existing ARB programs focus on smog precursors in consumer products, and does not fully address all potential emissions of concern, nor does it address all consumer products. If implemented, emissions testing would first be initiated for the high priority categories.

**Comment**: We recommend that discussion of the development of asthma precede the exacerbation of asthma. The Rosenman *et al.* (2003) study has several limitations that should be included in the report to put it in proper perspective based on shortcomings of data collection and reporting.

**Response:** Asthma exacerbation is the more frequent effect, and thus is appropriately discussed first. As we have stated previously, the authors of the Rosenmann *et al.* (2003) study examined a database of work-related asthma cases associated with cleaning products, reported primarily by physicians between 1993 and 1997. The article discusses limitations of the database: limited documentation of pulmonary function:

identification of the causal agent is based on history; and the database contains only a minority of the work-related asthma cases for the study states. However, the paper provides further citations for new-onset work-related asthma occurring after a documented exposure to cleaning products, and more citations for exacerbation of pre-existing asthma from such exposures. The large number of cases reported would indicate an association exists between asthma, bleach, and other cleaning products.

**Comment**: We are concerned with the use of the California Comparative Risk Project (CCRP), particularly the various definitions of "consumer product". The CCRP website is incomplete, missing some tables, etc.

**Response:** Calculations of cancer risk were based on indoor concentrations (minus outdoor concentrations) of specific TACs. These TACs were routinely found in indoor environments in residential studies in California, and were associated with known indoor sources. Calculations were based on distributions of indoor concentrations from multiple field studies. We have notified OEHHA regarding the tables missing from their website. If the problem is not resolved soon, we can provide copies of the needed tables to those interested.

#### VICKI

**Comment**: I disagree with the link between smoking and breast cancer. I am 54 years old, grew up with two parents who smoked in vehicles as well as in the home, my husband is a smoker, and I just had a clear mammogram. Think twice before cutting the rights of smokers.

**Response:** Thank you for your comments. We hope that you continue to experience good health. This topic is currently under review by the Scientific Review Panel (SRP), an external scientific peer review panel, as part of a separate action to list ETS as a toxic air contaminant. The SRP will make the final determination regarding an association between environmental tobacco smoke and breast cancer. For complete details of this topic and references, please refer to the document *Proposed Identification of Environmental Tobacco Smoke as a Toxic Air Contaminant*, available at http://www.arb.ca.gov/toxics/ets/dreport/dreport.htm.